REMARKS

Prior to an examination on the merits, please enter the following amendments and consider the remarks presented herein.

Applicant's invention allows the swift execution of interactive operations of a data broadcast program in a receiving apparatus as quickly and surely as possible during the broadcast period of a specific program. According to the invention, a specific program is scheduled to be transmitted, not at the reproduction time, but prior to the reproduction time of the specific program. This allows the receiver to acquire and save the specific program prior to the reproduction time. Thus when a viewer makes an interactive content selection the receiver is able to reproduce the content without having to wait to receive the specific program at the beginning of the reproduction time period.

Applicant's invention features a scheduling unit having a generation unit operable to generate (a) first messages which designate the receiving apparatus to store the specific program in a storing unit within the receiving apparatus and (b) a second message which designates the receiving apparatus to reproduce the specific program stored in the storing unit. Also, the transmission unit repeatedly transmits (a) the first messages for a duration from the transmission starting time to the transmission finishing time of the specific program, and (b) the second message in the reproduction time period of the specific program, and, repeatedly transmit content including scripts for control, for a duration from a broadcasting starting time of the specific program to a reproduction finishing time of the specific program, and the scripts for control perform so that (a) the specific program is stored in the case of receiving the first message and (b)the specific program is reproduced in the case of receiving the second message.

As described above the transmission unit repeatedly transmits the first messages, the second message, and the contents including scripts started up by these messages many times. Therefore the contents of the specific program is surely and reliably cached in the receiving apparatus before the broadcasting time of the specific program, and when the broadcasting time comes, the content of the program is surely and reliably reproduced.

This allows sure and reliable execution of an interactive application of a data broadcast program in the receiving apparatus, from a broadcast starting time of a specific program. An added advantage is that during the broadcast time period of the specific program, only scripts for control, the first message or the second message is transmitted, so the transmission band may can be reduced.

The data of the specific program and an instruction to cached contents data are repeatedly transmitted. Even if a viewer selects another program a piece of contents data corresponding to the specific program can be reproduced at the broadcast start time of the specific program.

Furthermore, even if the viewer switches the television channel to the specific program during broadcast of the specific program, the receiving apparatus receives the first and second messages so that the specific program can be reproduced while being cached.

Willard's (U.S. Pat No 6,374,405) disclosure relates to a method for an interactive television set for scheduling delivery of modules of interactive television applications from a broadcast station to a receiving station (*Willard*, Abstract). The module is packetized and transmitted at the corresponding start time. The last packet is held until the scheduled delivery time and is then transmitted. Because the module is considered to have been delivered to the receiving station when the last packet is received, the delivery time of the module is controllable to the within the limits of the last packets delivery.

Willard's packetized applications are transmitted before the delivery time. However, each of the packetized application is transmitted only once. Thus all the packetized applications are not necessarily transmitted safely.

In contrast, Applicant's data is <u>repeatedly</u> transmitted for a duration from a transmission starting time to a transmission finishing time of a specific program. The transmission of the data first messages and scripts for control are also <u>repeatedly</u> transmitted. Thus contents can be surely and reliably received and stored. Furthermore with Applicant's invention data can be transmitted at any time as long as there is a time period for transmitting data at least once before the reproduction time period. *Willard* fails to disclose or suggest this structure or effect.

Willard also discloses the following example. A module is further formatted into transmission units and is packetized to be transmitted via a broadcast channel. Each of the transmission units contains header information such as the module ID which allows the transmission units to be reconstructed into a complete module in the receiving apparatus.

The header packet may be an auxiliary packet which can generate an interrupt in the CPU. The auxiliary packet contains information to enable the CPU to determine whether the module should be decoded and where it should be loaded into memory. The Office asserts that *Willard* discloses Applicant's first message (Office Action, Page 3, Lines 16-18). The header information of Willard, however, shows the location in the memory where the module should be loaded as seen from the above description, and does not show "an instruction to cache data of a specific program," as in Applicant's first messages.

Generally, receiving apparatuses refer to the header information to automatically reconstruct data and store data in it own memory. This is performed in accordance with a program preset in the receiving apparatus based on the communication rule, not in accordance

with reception of scripts and messages transmitted from the transmission apparatus. Also the header packet is added to each of the transmission units, as information unique to the transmission unit. Instead of the header packet, Applicant's invention has messages that are repeatedly transmitted. Willard's packet, therefore, differs greatly from the broadcasts using Applicant's invention.

Delpuch describes an interactive program that is compressed. The compressed program is segmented into three different types of modules. The first module type is a code module which comprises the executable code needed to program a computing device at a receiver to perform or execute the application. The second module type is a data module. The data module includes non-executable data used in the execution of the application. The third module type is a signal. The signal module is a special packet able to trigger interrupts. Signals can be used to synchronize an application to a particular video frame (e.g. for action games) or to alert an application to the end of the application. A programmed system function is performed when the signal time video presentation time stamp matches the signal module presentation time stamp.

To avoid inclusion of a non-interactive commercial in a video during the execution of an interactive program, if a new interactive program occurs, a directory will change, and this change will alert the receiver to a program change. Such a program change will cause the receiver to dump the current program in favor of the new program. In *Delpuch*, however, it may occur that the new program requires very little memory space and it is intended to revert to the old program in a very short interval. In this case, it is more desirable to simply suspend execution of the present program rather than dump it, as the delay in re-covering the application may be undesirably long.

If a signal module is an executable program, the signal module stores the current status of the application the receiver is executing and the dumps the present application in favor of a newly transmitted application or suspends execution of the present application and removes it from memory or merely suspends execution, etc.

In other words, in *Delpuch*, when a non-specific program is broadcast to prevent execution of an interactive application in a specific program broadcast before the non-specific program a signal module for suspending the interactive application is transmitted. Accordingly, the interactive application is suspended or stopped without being dumped.

According to *Delpuch*, a specific program is transmitted only in its reproduction time period. And when a subsequent program is transmitted, an interactive application of the specific program is suspended or stopped.

In the present invention, however data of the specific program a script and first messages are <u>repeatedly</u> transmit <u>in a time period before</u> a reproduction start time of a specific program such as an interactive data program. Accordingly the data of the specific program is surely and reliably cached in the receiving apparatus before the reproduction starting time of the specific program. Then a second message is <u>repeatedly</u> transmitted in the reproduction time period, and the cached specific program is certainly reproduced in the receiving apparatus. The contents of the message and the transmission timing of the present invention are different from that of the signal module disclosed in *Delpuch*.

Accordingly, Applicant submits claims 11 – 15 are patentable over any combination of *Willard* and *Delpuch*.

Claims 16-18 are newly added and recite embodiments of the invention previously disclosed and not claimed.

Claim 16 recites a broadcast system for broadcasting television programs and associated interactive television program content, the broadcast system comprising: a program information holding unit 101 for holding a main program having a broadcast time interval and a data program having interactive program content for the main program (figure 5); a scheduling unit 102 for scheduling a data program transmit time interval for transmitting the main program the data broadcast time interval beginning prior to the broadcast time interval for the data program; and a transmission unit 112 for repeatedly transmitting the data program in a data carousel format during the transmit time interval and broadcasting the main program during the broadcast time interval wherein the data program transmission begins before the main program is broadcast, allowing a receiver to store the data program for execution during the main program (figure 5) (Application, Page 16, Line 23 – Application, Page 17, Line 26).

Claim 17 recites the transmit unit transmits a control script that commands the receiver to execute at least a portion of the main program (Application, Page 22, Line 22). Claim 18 recites the transmit unit transmits a command that commands the receiver to save a portion of the data program (Application, Page 22, Line 22).
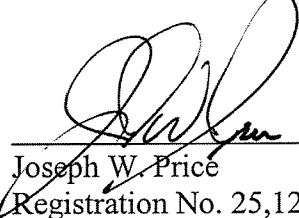
As explained above, *Willard* and *Delpuch* fail to disclose repeatedly transmitting a data program before the main program. This makes claims 16-18 patentable over any combination of *Willard* and *Delpuch*.

For the reasons stated above, Applicant now believes the application is in condition for allowance and early notification of the same is respectfully requested.

If the Examiner believes a further telephone conference would assist in the prosecution, the undersigned attorney can be contacted at the listed phone number.

Very truly yours,

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